Arkansas Department of Health

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H1N1 Vaccine Provider Pre-Registration Sign-Up Go to: https://health.arkansas.gov/ADHInternetApps/ Put in the Generic User Email address: users@h1n1providers.com ; use Password (case sensitive): H1N1Vaccine
*Everyone must use this email address and password to access the form-Please do not attempt to personalize.

Click on the left side of the page "H1N1 Provider Info Form" and that will take you to the preregistration pages to complete. Click ***save*** at the bottom when complete. If a required field is missing, the page will take you back to the required field.

Surveillance for Pediatric Deaths Associated with 2009 Pandemic Influenza A (H1N1) Virus Infection - United States, April-August 2009, *MMWR*, September 4, 2009 / 58(34);941-947

Children aged <5 years or with certain chronic medical conditions are at increased risk for complications and death from influenza. Because of this increased risk, the Advisory Committee on Immunization Practices (ACIP) has prioritized influenza prevention and treatment for children aged <5 years and for those with certain chronic medical and immunosuppressive conditions. As of August 8, 2009, CDC had received reports of 477 deaths associated with 2009 pandemic influenza A (H1N1) in the United States, including 36 deaths among children aged <18 years. To characterize these cases, CDC analyzed data from April to August 2009. The results of that analysis indicated that, of 36 children who died, seven (19%) were aged <5 years, and 24 (67%) had one or more of the high-risk medical conditions. Twenty-two (92%) of the 24 children with high-risk medical conditions had neurodevelopmental conditions. Among 23 children with culture or pathology results reported, laboratory-confirmed bacterial coinfections were identified in 10 (43%), including all six children who 1) were aged ≥5 years, 2) had no recognized high-risk condition, and 3) had culture or pathology results reported. Early diagnosis of influenza can enable prompt initiation of antiviral therapy for children who are at greater risk or severely ill. Clinicians also should be aware of the potential for severe bacterial coinfections among children diagnosed with influenza and treat accordingly. All children aged ≥6 months and caregivers of children aged <6 months should receive influenza A (H1N1) 2009 monovalent vaccine when available.

Thirty-six pediatric deaths associated with 2009 pandemic influenza A (H1N1) infection were reported from 15 state and local health authorities through August 8. Illness onsets occurred during May 9-July 20, and deaths occurred during May 15-July 28. Six deaths occurred in May, 25 deaths in June, and five deaths in July. Median age of the patients was 9 years (range: 2 months-17 years); 50% were male, 42% were non-Hispanic white, and 33% were Hispanic. Seven (19%) of the 36 children were aged <5 years (five were aged <2 years), and 24 (67%) had at least one high-risk medical condition, including three children aged <5 years. Among the 24 children with high-risk medical conditions, 22 (92%) had neurodevelopmental conditions (e.g., developmental delay or cerebral palsy). Of these 22 children, 13

(59%) had more than one neurodevelopmental diagnosis, and nine (41%) had neurodevelopmental and chronic pulmonary conditions. Eight (22%) of the 36 children were aged ≥5 years with no reported high-risk conditions. Two of these eight children were reported as obese; however, height and weight measurements were not reported.

Duration of illness before death in the 36 cases ranged from 1 day to 28 days (median: 6 days). Among 31 children for whom antiviral treatment data were available, 19 (61%) received antiviral treatment, and four of those received treatment within 2 days of illness onset. Of 25 children for whom information was available, 13 (52%) had received at least 1 dose of the 2008-09 seasonal influenza vaccine, including 11 children with high-risk medical conditions. Of the 23 children with culture or pathology results reported, 10 (43%) had a laboratory-confirmed bacterial coinfection, including *Staphylococcus aureus* (five, including three methicillin-resistant *S. aureus*), *Streptococcus pneumoniae* (three)*, Streptococcus pyogenes* (one), and *Streptococcus constellatus* (one). Among the eight children aged ≥5 years who did not have a high-risk medical condition, six had a laboratory-confirmed invasive bacterial coinfection, including four with *S. aureus;* the other two children either had no specimens collected or information regarding bacterial coinfection was unavailable. Among the seven children aged <5 years who died, two had a laboratory-confirmed bacterial coinfection; neither child had a high-risk medical condition.

Twenty-eight (78%) of the 36 children whose deaths were associated with 2009 pandemic influenza A (H1N1) virus infection were in at least one of two groups previously found to be at increased risk for complications from seasonal influenza: children aged <5 years and those with a high-risk chronic medical condition. The percentage of children with high-risk medical conditions (67%) in this series is higher than the percentage reported in recent influenza seasons. During the 2003-04, 2004-05, 2005-06, and 2006-07 seasons, a total of 153, 47, 46, and 73 pediatric deaths were reported through the influenza-associated pediatric mortality reporting system, respectively. During those seasons, the percentages of children with high-risk medical conditions were 47%, 55%, 48%, and 35%, respectively. During the same seasons, among children who died, the percentages of children aged <5 years and aged <2 years among pediatric deaths was generally higher (<5 years, 42%-63%, <2 years, 26%-46%) than the 19% and 14%, respectively, reported for 2009 pandemic influenza A (H1N1). Continued surveillance is needed to determine whether these and other differences between pediatric deaths from seasonal influenza and deaths from 2009 pandemic influenza A (H1N1) are important.

Notably, among children with high-risk medical conditions, 92% had neurodevelopmental conditions (e.g., developmental delay or cerebral palsy), a finding consistent with the results from a study of influenza-associated mortality during the 2003-04 influenza season. In 2005, that finding helped lead to the addition of neurodevelopmental conditions to ACIP's list of conditions that should prompt seasonal influenza prevention and treatment. The findings from this report indicate that most of the children with neurodevelopmental conditions who died had multiple neurodevelopmental diagnoses and/or comorbid pulmonary conditions. Health-care providers should be aware of the potential for severe influenza illness, including death, in these children.

This report also highlights the prominence of laboratory-confirmed bacterial coinfections, which were identified in 10 (43%) of the 23 children who had culture or pathology results reported. All six children who were aged ≥5 years, did not have a high-risk medical condition, and had culture or pathology results reported had an invasive bacterial coinfection, suggesting that bacterial infection, in combination with 2009 pandemic influenza A (H1N1) virus infection, can result in severe disease in children who might be otherwise healthy. Clinicians should be aware of the potential for severe bacterial coinfections among children diagnosed with influenza and treat accordingly. As always, diagnostic testing and susceptibility testing of bacterial isolates are important to guide antibiotic therapy. Empiric antibacterial therapy, when indicated, should be directed at likely pathogens associated with influenza, such as *S. aureus, S.*

pneumoniae, and *S. pyogenes*. In addition, all children should be current on recommended vaccinations, including 7-valent pneumococcal conjugate vaccine. Children aged ≥2 years with certain high-risk medical conditions are recommended to receive the 23-valent pneumococcal polysaccharide vaccine in accordance with guidance.

Although the majority of children in this case series received antiviral treatment, few received treatment within 2 days of illness onset. Influenza antiviral treatment is recommended for persons with suspected or laboratory-confirmed influenza who are hospitalized or who are at greater risk for influenza-related complications. If a child is not in a high-risk group or is not hospitalized, health-care providers should use clinical judgment to guide treatment decisions. When evaluating children, clinicians should be aware that the risk for severe complications from seasonal influenza among children aged <5 years is highest among children aged <2 years. Antiviral treatment should be started as soon as possible after illness onset; evidence for benefits from antiviral treatment in studies of seasonal influenza is strongest when treatment is started within 48 hours of illness onset. However, treatment of any person with influenza who requires hospitalization is recommended, even if treatment is started >48 hours after illness onset. Health-care providers should be aware that although specificity is high, sensitivity of rapid influenza tests to detect 2009 pandemic influenza A (H1N1) virus infection is low; therefore, a negative test result does not exclude 2009 pandemic influenza A (H1N1) virus infection.

The Arkansas Dept of Health will be upgrading the software used for the Health Alert Network (HAN). Use of this new system will begin on October 1, 2009. To ensure you continue to receive Dr. Snow's weekly letter and other important health information you must logon to https://health.arkansas.gov/codespearreg, click on "new user information" and fill in the blanks. You are required to have an email address. This email address becomes your logon ID. Please click on the web address and sign up. We will not be sending faxes after October 1.

Thank you for your assistance in helping us increase our capacity to keep you informed of important public health information in Arkansas.

If e-mail is not available, please notify Ms Deborah Biddle at Deborah.biddle@arkansas.gov.

If you have any questions please feel free to contact Dr. Sandy Snow at 501-661-2169 or fax to 501-661-2300 or e-mail to Sandra.snow@arkansas.gov.